Abstract of the Disclosure

Decoding an encoded signal (for example, a turbo encoded signal, a block encoded signal or the like) is performed by demodulating the received encoded signal to produce soft information, and iteratively processing the soft information with one or more soft-in / soft-output (SISO) modules. At least one of the SISO modules uses a tree structure to compute forward and backward state metrics. More generally, iterative detection is performed by receiving an input signal corresponding to one or more outputs of a module whose soft-inverse can be computed by running the forward-backward algorithm on a trellis representation of the module, and determining the soft inverse of the module by computing forward and backward state metrics of the received input signal using a tree structure.

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